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Fawn Creek

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT OFFICE

ENVIRONMENTAL ASSESSMENT NO. OR090-01-21
Fawn Creek Forest Management Project

I. INTRODUCTION

A. PURPOSE OF AND NEED FOR THE ACTION

This action proposes timber harvest and other forest management activities within a project area located in Section 17, Township 20 South, Range 5 West, Willamette Meridian, Lane County, Oregon, in the South Valley Resource Area of the Eugene District of the Bureau of Land Management (BLM).

The project area is within the Late-Successional Reserve (LSR) and Riparian Reserve Land Use Allocations in the Siuslaw Watershed. The purpose of the Proposed Action within the LSR and Riparian Reserves is to hasten the development of some late-successional forest structural characteristics. The need for the action in the LSR is established in the "Eugene District Record of Decision and Resource Management Plan," June 1995 (RMP), which directs that thinning be conducted in the LSR if needed to create late-successional forest conditions (RMP, p. 30). This need is further detailed in the LSR Assessment for the Oregon Coast Province -- Southern Portion (RO267, RO268) which determined that thinning of uniform dense stands would accelerate attainment of some late-successional forest characteristics (LSR Assessment, pp. 35-37). The need for the action in the Riparian Reserves is established in the RMP, which directs that silvicultural practices be applied in Riparian Reserves to acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives (RMP, p. 24). Specific objectives of this action in the LSR and Riparian Reserves are to increase individual tree growth rates, canopy layering, tree species diversity, and the amount of coarse woody debris and snags.

The purpose of the Riparian Enhancement action is to improve fish habitat. The need is established by the lack of in-stream structure.

B. CONFORMANCE WITH LAND USE PLAN

The Proposed Action and alternatives are in conformance with the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl,* April 1994 (NSO ROD), and the RMP as amended by the *Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines,* USDA Forest Service and USDI Bureau of Land Management, January 2001.

An LSR Assessment for the Oregon Coast Province -- Southern Portion (RO267, RO268), within

which the project area lies, has been completed. The Regional Ecosystem Office has reviewed the LSR Assessment and found that it provides a sufficient framework and context for future projects and activities in the LSR. The Proposed Action and alternatives are consistent with the treatment criteria in the LSR Assessment and with the standards and guidelines in the NSO ROD, and thus do not require project-level review by the Regional Ecosystem Office.

The project area fits the management trigger identified in the LSR Assessment, and the Proposed Action and alternatives are designed to be consistent with the management criteria identified in the LSR Assessment (LSR Assessment, p. 43). Although there are other stands in this LSR in the South Valley Resource Area that demonstrate a similar need, this project area was identified because the existing road system would allow management with a minimum of new road construction. The LSR Assessment identified priority areas for treatments, and this project area is identified as Priority 3. Although there are some stands in the South Valley Resource Area that are identified as Priority 1 and 2, thinning those stands would require more road construction.

Additional site-specific information is available in the Fawn Creek Forest Management project analysis file. This file and the above referenced documents are available for review at the Eugene District Office.

II. ISSUES

A. ISSUES SELECTED FOR ANALYSIS

The following issues were identified during development of the action alternatives.

Issue 1: *How would timber harvest affect attainment of Aquatic Conservation Strategy objectives?*

In order for a proposal to comply with the Northwest Forest Plan, it must be shown that the project, at a minimum, does not prevent or retard attainment of the nine Aquatic Conservation Strategy Objectives. Activities described in the Proposed Action and alternatives may have some effect on BLM's ability to meet these objectives.

Issue 2: *What are the effects on red tree voles as a result of timber harvest and road construction?*

Red tree voles, a Survey and Manage species and a prey species of the northern spotted owl, exist within the project area. Timber harvest and road construction could affect these species.

Issue 3: *How would timber harvest affect attainment of Late Successional Reserve Objectives?*

The LSR objective in the LSR Assessment (page 1) is to protect and enhance conditions of late-successional forest ecosystems, which serve as habitat for late successional forest species. Late Successional Reserves are designed to maintain a functional, interacting late-successional ecosystem. To achieve this, two goals have been established:

1) Create and maintain late-successional habitat and ecosystems

2) Create and maintain biological diversity associated with native species and ecosystems

All management with LSR boundaries on federal lands must assure the protection and/or enhancement of conditions of late-successional forests. Activities described in the Proposed Action and alternatives may have some effect on BLM's ability to meet these objectives.

Issue 4: *How would timber harvest affect fungi habitat and mushroom gathering?*

During public scoping, local residents raised the question of how the Proposed Action may affect crops of edible fungi in this stand.

Issue 5: *How would timber harvest affect adjacent spotted owl sites and critical habitat?*

The project area is within the home range of the Letz Creek owl site and the Gardner Creek owl site. Timber harvest could affect these owl sites. The project area lies within a larger area identified by the U.S. Fish and Wildlife Service as being critical habitat for northern spotted owls. Critical habitat consists of habitat capable of supporting nesting, roosting, and foraging for resident owls, and dispersal habitat for owls seeking unoccupied territories. Timber harvest could affect one or more of these important functions of critical habitat.

B. ISSUES NOT ANALYZED

During public scoping, local residents expressed concerns that slash burning may affect the local air quality. This was not analyzed because burning is not proposed in any action alternative.

During the 30-day public comment period, one commentor suggested that new roads and landings would contribute to the establishment of invasive weeds, such as Canada thistle, bull thistle, and tansy ragwort, in the project area. These plants need maximum sunlight to become established. None of the alternatives would open the tree canopy enough to allow establishment of these species. Therefore, this issue was not analyzed because there is a very low likelihood that these plants could get established in the stand.

III. PROPOSED ACTION AND ALTERNATIVES

The Proposed Action, Alternative A, and Alternative B propose forest management activities including density management by commercial timber harvest; felling trees to create coarse woody debris;and road construction, renovation, and decommissioning in an approximately 400-acre project area. Alternative D proposes similar actions, except there would be no creation of coarse woody debris in the Riparian Reserves.

A. PROPOSED ACTION - Density Management/Riparian Reserve Treatment (Single Harvest Entry)

This is a density management alternative in which approximately 150 acres would be treated to hasten the development of late-successional characteristics. Approximately 2 million board feet (MMBF) (4000 CCF) of timber would be offered for sale.

Silviculture

All trees not specifically identified for retention would be cut.

No site preparation or logging slash reduction treatments are anticipated.

Approximately half of the proposed harvest area would be planted to approximately 100 shade-tolerant conifers per acre.

Retention

The harvest area (uplands and up to 100 feet from Streams 7-12) would be thinned from below, reserving the largest, most vigorous trees. Harvested trees would be primarily Douglas-fir. Approximately 60 trees per acre (TPA) would be retained. In addition, 10 TPA with a minimum diameter at breast height (DBH) of 12 inches would be felled and left on site as coarse woody debris.

Minor conifers, hardwoods, snags, and coarse woody debris of decay classes 3, 4 and 5 would be left where possible. Snags and hardwoods felled for safety reasons would be left on site.

Additional pulses of downed woody debris and snag creation may be done over the years if natural events are insufficient to meet the 10-year target of 1600-2000 cubic feet per acre of coarse woody debris.

Riparian Enhancement

Between 25-100 feet from Stream 7, north of its confluence with Stream 10, the following treatment would take place:

Single Tree Falling: Between 10-15 trees would be felled and left on site for in-stream structure. The trees selected for falling would be from across the range of diameter classes in the stand and would be in a position to be felled into the stream channel without sacrificing streambank stability and streamside shading.

Reserves

The height of one site-potential tree has been determined to be 200 feet slope distance in the Siuslaw Watershed. Riparian Reserves 200 feet wide on either side of non-fishbearing streams and 400 feet wide on either side of fishbearing streams would be managed in accordance with the standards and guidelines in the NSO ROD (Appendix C, pp. 31-38). Management treatments within the Riparian Reserves would include single tree felling, described above under "**Riparian Enhancement**;" thinning, described above under "**Silviculture**;" and coarse woody debris creation, described above under "**Retention**." Riparian Reserves for Streams 7-12 would be harvested to 100 feet from the streams, or the topographic break, whichever is farther from the streams. No tree harvest would occur within 100 feet of any streams, and no treatment other than stream crossing rehabilitation would occur within 25 feet of any streams. Approximately 1,200 feet of road renovation (Spur H) necessary to provide access would occur within the 400-foot Riparian Reserve for Stream 7, as would road decommissioning.

Untreated areas (those areas not included in the harvest area) would include Riparian Reserves for hydrological features 1-6 and 13-22; the inner 100 feet of the Riparian Reserves for Streams 7-12; the southwest ¼ of the section that is west of Road No. 20-5-20.1; approximately 20 LSR acres north of Road 20.1 that are not within any reserve; Riparian Reserves north of Road 20-5-20.1; a "property buffer" east of Stream 7 that is at least 700 feet wide from the south property line; and a "property buffer" west of Stream 7 that is at least 200 feet wide from the south property line.

One *Sarcosoma mexicana* population would have a ¼-acre reserve around it. A *Cimicifuga elata* population would be reserved within the untreated Riparian Reserves of Streams 17, 18,

and 19. A *Gymnopilus punctifolius* would have a reserve around it of approximately 2.8 acres (a circular reserve with a radius of a site tree, or 200 feet).

All 46 *M. hemphilli* Survey and Manage mollusk sites would be reserved as described for Strategy 1 in the Management Recommendations for Terrestrial Mollusk Species, Version 2.0, 1999. Additionally, 11 sites with other mollusk species would be reserved. The majority of the sites would be protected by reserving the SW quarter of the section that is west of Road No. 20-5-20.1. The remainder of the sites are either located within Riparian Reserves or would be protected by quarter acre reserves. Each reserve would retain the majority of the shade to the south of the mollusk site and would protect the site from mechanical damage. Approximately 31 acres of the original proposed harvest area would be placed in reserves to accommodate mollusks.

Red tree vole (RTV) nest trees would be in reserves of no less than 10 acres in accordance with the Management Recommendations. Reserve boundaries would be at least 200 feet from any RTV nest tree. Approximately 34 acres of the original proposed harvest area would be placed in reserves to accommodate the RTVs, including approximately 20 acres of LSR north of Road 20-5-20.1.

Roads and Yarding

Approximately 3,200 feet of road would be constructed (Spurs C and D) on BLM land. Approximately 8,900 feet would be renovated (Road 20-5-20.1and Spur H), with approximately 7,800 feet on BLM land and 1,100 feet on private land. In general, the roads that would be renovated can be driven under current conditions by a high clearance vehicle. Renovation would assure that roads could be used to carry out the project without creating off-road impacts. Roads would have a 14-foot subgrade and a natural surface with no ditch and outsloped, where possible. Renovation of Road 20-5-20.1 would involve rocking about 500 feet on private land, to protect a water source (hydrological feature #23). A portion of Spur C would be subsoiled (i.e., mechanically breaking up the compacted area of the road), blocked and waterbarred in the same year of construction. Spur H and a portion of Road 20-5-20.1 would be subsoiled, blocked and waterbarred in the same year of use. Spur D and the remaining portions of Spur C and Road 20-5-20.1 would be blocked and waterbarred between logging seasons. Completion of the project would take no more than 3 years. Upon completion of the project, Spur D, the remaining portion of Spur C, and Road No. 20-5-20.1 would be blocked and subsoiled. Road 20-5-20.1 would not be subsoiled in the vicinity of the water source (feature #23).

The area would be logged with both a cable yarding system and a ground-based yarding system while adhering to the relevant Best Management Practices (BMPs) listed in Appendix C of the RMP. Ground-based yarding would be restricted to areas with slopes less than 35 percent and operations would be limited to periods of low soil moisture (dry season). Ground-based yarding may occur within the 400-foot Riparian Reserve of Streams 7 and 9, but would be a minimum of 200 feet from any stream. Skid trails would be designated and limited in extent to less than 10% of the unit. Upon completion of operations, skid trails would be subsoiled. Harvest activities would be restricted during the sap flow period.

During log hauling, a flag person would be required on County Road No. 4393.

Falling and yarding operations would not be allowed between March 1 - July 7. This is the critical nesting period for the northern spotted owl.

B. ALTERNATIVE A - Density Management/Riparian Reserve Treatment (Multiple Entries)

This is a density management alternative similar to the Proposed Action. The commercial treatment would remove fewer trees than the Proposed Action in this entry, with more thinning entries (to hasten development of late-successional characteristics of the stand) likely in the future. Approximately 1.3 MMBF (2,700 CCF) of timber would be offered for sale.

Silviculture

Douglas-fir would be thinned from below, retaining approximately 110 Douglas-fir TPA. Snags, hardwoods, and other conifers would be retained where possible.

No trees would be planted.

Roads and Yarding

Road and yarding activities would be the same as the Proposed Action. Future entries would most likely necessitate renovation of some or all of the roads constructed or renovated with the first entry.

All other activities, including **Retention, Riparian Enhancement,** and **Reserves,** would be the same as the Proposed Action.

C. ALTERNATIVE B - Density Management/Riparian Reserve (Single Entry) North Area Included

This alternative is similar to the Proposed Action except that an additional 20 acres of the LSR area north of road 20-5-20.1 would be included in the treatment area; an additional 325 MBF (680 CCF) would be offered for sale.

Reserves

Untreated areas would be similar to the Proposed Action except in the area north of Road 20-5-20.1. In this area, six active red tree vole nests and 3 inactive red tree vole nests would be reserved. Riparian Reserves for hydrologic features 13-22, a stand of older timber adjacent to the Riparian Reserve for Stream 14, and rocky openings within or adjacent to the Riparian Reserves for Streams 17 and 18 would be left untreated. Approximately 20 LSR acres north of Road 20-5-20.1 not treated in the Proposed Action of Alternative A would be treated.

Roads and Yarding

Roads would be similar to the Proposed Action except that Spurs A (approximately 600 feet on BLM and 200 feet on private) and B (approximately 600 feet on BLM) and Road No. 20-5-20.1T (approximately 200 feet of BLM road on private land) would be constructed (approximately 1,200 feet of additional construction on BLM and 400 feet of additional construction on private), and Road No. 20-5-21.2C would be renovated (approximately 200 feet of BLM road on private land).

All other design features, including **Silviculture**, **Retention**, and **Riparian Enhancement** would be the same as the Proposed Action.

D. ALTERNATIVE C - No action

All timber harvest activities would be deferred; no management activities described under the Proposed Action, Alternatives A, B, or D would occur, and no timber would be offered for sale at this time.

E. ALTERNATIVE D - Density Management using Existing Roads Only

This alternative is similar to the Proposed Action, except that approximately 66 acres of LSR would be harvested, yielding approximately 1 MMBF (2,000 CCF); no Riparian Reserves would be commercially harvested; only existing roads would be renovated and used; and only cable yarding would be used.

Reserves

Reserves would be the same as the Proposed Action, except that no Riparian Reserves would be treated. Approximately 50 additional LSR acres would be untreated (the area that would have been accessed by Spurs C and D in the Proposed Action). There would be no coarse woody debris creation in Riparian Reserves as described under the Proposed Action.

Roads and Yarding

No new roads would be constructed. Approximately 8,400 feet of road would be renovated (Spur H and Road No. 20-5-20.1) and of that, approximately 7,900 feet would be decommissioned upon completion of operations.

The area would be logged with only a cable yarding system.

All other design features related to **Roads and Yarding** would be the same as the Proposed Action.

All other activities, including **Silviculture, Retention,** and **Riparian Enhancement,** would be the same as the Proposed Action. This would include the single tree falling adjacent to Stream 7.

F. ALTERNATIVES CONSIDERED But Not Analyzed

1. Horse logging: Horse logging was suggested as a possible means of logging the project area. The use of horses in logging is considered ground-based yarding. Ground-based yarding is part of the Proposed Action. While horse logging has not been analyzed specifically, ground-based yarding in general has been analyzed.

2. Density Management with Riparian Treatment - Semi-Permanent Roads: This alternative would be similar to the Proposed Action except that none of the newly constructed or renovated roads would be required to be decommissioned within the same year of construction/use. This alternative was not analyzed because the amount of semi-permanent road involved would have resulted in a “degrade checkmark” in consultation with the National Marine Fisheries Service.

3. Stream Restoration: This design feature would have been included in all of the action alternatives. The fill material from dirt road crossings of Streams 7, 8, 9 and 10 would have been removed using a low ground pressure excavator to reduce sediment flow from these crossings. Approximately 50 trees ranging from 5-18 inches DBH would have been felled and bucked in order for the excavator to maneuver to the crossings and renovate the sites. All

felled trees would have been left on site as in-stream structure or placed on top of the dispersed material. This feature is no longer proposed because red tree vole nests were found near the existing road crossings that would have been decommissioned. Designing a project to accommodate red tree voles will require additional site specific analysis.

IV. EXISTING CONDITIONS

A. GENERAL SETTING

The project area is in the Coast Range Province and the Siuslaw Watershed. The Siuslaw Watershed Analysis analyzed the condition of the Riparian Reserves in the watershed and established guidelines under which they should be treated. (Siuslaw Watershed Analysis, Chapter 5, pages 1-2.)

The plants and animals in this project area do not differ significantly from those discussed in the Eugene District Proposed Resource Management Plan/Environmental Impact Statement (RMP EIS) (Chapter 3). The following resources are also discussed in greater detail in the project file.

B. SPECIFIC RESOURCE DESCRIPTIONS

Vegetation

Most forest stands in the Siuslaw Watershed are currently in early- or mid-seral stages. Approximately 31% of the federal forested land in the watershed is in a late-successional condition.

Surrounding BLM sections are LSR, with the exception of the section to the northeast (Matrix-Connectivity).

To the south of the project area are homesites, County Road No. 4393, and the Siuslaw River (approximately 800 feet away at the closest point). To the southwest is a BLM-managed stand of Douglas-fir approximately 98 years old. To the northwest and north are stands of approximately the same age and type as the project area. To the east are clearcuts less than 10 years old and a small patch of second-growth timber approximately the same age and type as the project area.

The project area is composed of a second-growth stand with two forest types. Both types are fully stocked with an overstory of Douglas-fir. The south portion regenerated naturally from seed trees left after logging in the late 30's to mid 40's, resulting in a well-differentiated stand with a wide range of diameters and clearly dominant trees. The seed trees were harvested in 1958 when the south portion was designated stocked-established. This area was pre-commercial thinned in 1971 to 300 TPA.

The north portion was logged in the mid 50's. Regeneration was from both natural seeding and planting. Pre-commercial thinning was done in 1976 to 300 TPA. This portion of the stand has a narrow range of diameters, more competition for growing space, and is experiencing some suppression mortality.

Understory vegetation is dominated by salal, sword fern, and Oregon-grape. The average stand age is 43 years old. The average DBH is 13 inches. There are approximately 235 TPA.

Wildlife (including Special Status and Special Attention Species)

The project area is within the home range of the Letz Creek owl site and the Gardner Creek owl site. A pair was located at the Letz Creek site in both 1997 and 1998. In 1998, the female owl was also found once in the southwest quarter of Section 17. There was no response at the Letz Creek site center in 1999; however, the female was located several miles away. In 2000, the only response in the area was a male barred owl. In the spring of 2001, a male spotted owl responded at Letz Creek. No owls have been found for the past few years at Gardner Creek. The spotted owls originally located at Gardner Creek moved to another site. The Fawn Creek project area may function as foraging habitat for the Letz Creek site. Due to the red tree vole population within the stand, the stand is good foraging habitat.

Section 17 (where Fawn Creek project area is located) is listed as critical habitat (Critical Habitat Unit (CHU) OR-53) for the northern spotted owl. The stand does provide both foraging habitat for the Letz Creek site and dispersal habitat for spotted owls seeking territory. Dispersal habitat is considered to be a component of critical habitat. This CHU has approximately 52,000 acres of federal land encompassing both the Eugene and Roseburg Districts. The Eugene District has 31,180 acres, of which 10,734 acres (34%) are suitable habitat, and 8,002 acres (26%) are dispersal habitat.

Surveys for RTVs have been completed, with 14 active nests, 16 inactive nests, and 2 nests of undetermined activity located in the project area. The majority of nests were found in the area north of Road 20-5-20.1. Most of the others were found in the southeast quarter section between the road and the main tributary. Both areas are near late-successional forest; there is a stand of late-successional forest in the southwest quarter section and another patch in the northwest of the northeast quarter section. Old-growth habitat appears to provide optimum conditions for red tree vole populations (Management Recommendations for the Oregon Red Tree Vole, *Arborimus longicaudus*, Version 2.0, 2000). According to the red tree vole survey protocol, factors making the species vulnerable are their small home ranges, low dispersal capability, low reproductive potential, and a sensitivity to stand level disturbances. From Huff, Holthausen, and Aubry (1992), the primary feature of good red tree vole habitat is the presence of large trees greater than 39 inches diameter and greater than 160 feet tall. Looking at stand size, red tree voles were captured in 22% of 79 stands greater than 100 acres but in only 1 percent of the 12 stands under 100 acres; no voles were captured in stands less than 75 acres. Huff, et al suggests that red tree voles would benefit from the retention of stands substantially larger than 75 acres.

The project area is suitable habitat for *Megomphix hemphilli* (Oregon megomphix). Surveys have been conducted as directed in current protocols. Oregon megomphix were found at 46 sites before October 1, 1999. There is no suitable habitat for *Pristiloma arcticum crateris* in the project area. (Eighteen sites with *Prophysaon coeruleum* (Blue gray tail-dropper) and two sites with *Prophysaon dubium* (Papillose tail-dropper) were also found; these species were former Survey and Manage mollusks but were found in such high numbers and in multiple ages of forest stands throughout the region that they are no longer considered to be at risk.)

Surveys for marbled murrelets were completed in Fall 2000. This included climbing six trees outside of the project area which appear to be suitable habitat for marbled murrelets. The U.S. Fish and Wildlife Service has approved this method of surveying protocol. No marbled murrelets were detected.

Aquatic and Riparian Resources and Fisheries

The elevations in the project area range from approximately 680 to 1080 feet. The project area is below what is considered the transient snow zone. Rain-on-snow events are very unlikely in the Coast Range at these elevations.

Eleven perennial streams (1, 5, 6, 7, 9, 10, 12, 14, 15, 18, and 19), nine intermittent streams (2, 4, 8, 11, 13, 16, 17, 21, and 22) and three seeps and springs (3, 21 and 23) were identified within or immediately adjacent to the project area. Hydrological features numbers 2, 13, 21 and 23 are entirely on private property. Streams 1, 2, 4, 5, 6, 7-12 drain to the Siuslaw River. Streams 13-19, 21-22 drain into Fawn Creek, a major tributary of the Siuslaw River.

There are several filed water rights in the vicinity of the project area. There is a filed water right for domestic use on Stream 7 approximately 800 feet south of the south property line of Section 17. There is a filed water right on Stream 6 just south of the south property line of Section 17. There are irrigation rights on the Siuslaw River south of the project area and on Stream 7 south of the project area. A spring (#23) that is a known domestic water source is located approximately 75 feet south of the project area.

There are three known water pipes located on federal land within the project area. These are located on Streams 5, 6 and 7. There are currently no known water rights or legal rights-of-way for these locations on federal land.

Streams 1-6, 8, and 10-22 are non-fishbearing due to insufficient flow; a lack of habitat; natural or human-caused barriers; or gradients too steep for fish migration. These non-fishbearing streams have a substrate dominated by silt/sand, due mostly to the local siltstone/sandstone geology, and a small amount of gravels. Large woody debris is low to moderate in abundance. The stream channels and sideslopes are stable and well shaded by a second-growth conifer/hardwood stand.

Stream 7 is the only fish-bearing stream within the project area. A moderate sized population of resident cutthroat trout (*Oncorhynchus clarkii*), 1 inch to 4 inches in length, was detected from the confluence with Stream 10 south to the Siuslaw River. Numerous unidentified salamanders were also detected. This portion of the stream has an abundant amount of rearing habitat but poor and limited spawning grounds. The channel is dominated with sand and silt with only a minor component of gravels. Habitat is primarily pools and riffles with some cascades and a good pool/riffle ratio. There is an abundant amount of refugia: overhanging shrubs, undercut banks and root systems. Large woody debris is moderate in abundance with most in the 12-24 inch diameter class, but some larger, and in the later stages of decay. The stream is well shaded by second-growth Douglas-fir, western hemlock, and red alder, mostly in the 12-16 inch diameter classes. Sideslopes and streambanks are stable other than the road/stream crossing failures. Understory is dominated with salmonberry, sword fern, and vine maple.

Numerous old roads and tractor skid trails within the project area were utilized during the last logging entry. The old roads and trails cross stream channels 7, 8, 9, and 10. Log culverts and fill were utilized in many of these areas. Fill depth varies from a few feet to about 20 feet over the channels. A large fill on Stream 7 has already failed, most likely occurring during large flow events.

Stream 7 was crossed twice by an old logging road. The lower crossing just north of the confluence with Stream 9 has a large amount of fill in the channel. The upper crossing has far less fill and does not seem to be hindering stream flow. The lower crossing has remnants of an

old log culvert that has since failed. Large flow events in recent years have initiated erosion and cut out a small portion of the road. The stream is in the process of regaining its original channel; however, moderate amounts of sediment are being transported to downstream fish habitat from this crossing. Crossings over Streams 9 and 10 are currently in a stable condition and adding only small to moderate amounts of sediment to downstream habitat. However, future large storm events could alter the present condition, and add much larger amounts of sediment to a system that is already dominated with silt and sand.

At the county road crossing is an undersized (24 inch) concrete culvert with a broken outlet. This culvert condition is potentially hindering or restricting upstream fish migration.

The Siuslaw River lies to the south of the project area and plays an integral role in the freshwater life stages of anadromous species. This portion of the Siuslaw River is a highly degraded system that has experienced vast changes over the decades.

The Siuslaw Watershed Analysis recommends the restoration of aquatic habitat conditions through placement of channel structures in mainstem and tributary streams. (Siuslaw Watershed Analysis, Chapter V, pp 5-6.)

Botany

The herb layer is mostly native, with weedy and noxious species (Scotchbroom) located along Road No. 20-5-20.1. Special habitats include some disturbed rocky openings in the northern portion of the unit within or adjacent to the Riparian Reserves for Streams 17 and 18. There is also some well-developed mature to old-growth forest located in the west ½ of the northeast ¼ of Section 17, within or adjacent to the Riparian Reserve for Stream 14, within the project area but not within the proposed harvest area.

Three populations of *Cimicifuga elata* (a Bureau sensitive, State Candidate, Lane County Threatened and Endangered species of vascular plant) were found within the project area. No other threatened, endangered, or sensitive vascular plant species were found in 1997 vascular plant surveys.

Two populations of *Sarcosoma mexicana* were found within the project area. Detections occurred incidentally during surveys for Component 2 mollusks. Surveys for *Sarcosoma mexicana* are no longer required in the Coast Range Province.

No Survey and Manage bryophytes or lichens were found.

One *Gymnopilus punctifolius* was located in the project area.

The commonly collected edible fungi that may occur in this stand include chanterelle, hedgehogs, matsutake, boletes, and milky caps. These are all mycorrhizal fungi (they depend on tree hosts for energy and enhance the host tree's ability to take up water and nutrients). Currently available BLM permit records indicate no commercial mushroom permits have been issued for the project area. Personal use, defined as up to 1 gallon per day and a total of 5 gallons per year, does not require a mushroom permit and therefore is not tracked by the BLM. There is currently no established feedback mechanism for personal use pickers and the Eugene BLM to communicate on such concerns. Communications by interested pickers would be encouraged after any action that is implemented at the Fawn Creek Project Area.

V. DIRECT AND INDIRECT EFFECTS

A. UNAFFECTED RESOURCES

The following resources are either not present or would not be affected by any of the alternatives: Areas of Critical Environmental Concern, prime or unique farm lands, floodplains, Native American religious concerns, solid or hazardous wastes, Wild and Scenic Rivers, cultural resources, Wilderness, minority populations, and low income populations.

B. PROPOSED ACTION

ISSUE 1: Effects on Attainment of ACS Objectives

The Proposed Action includes management within Riparian Reserves that is needed to attain Aquatic Conservation Strategy (ACS) objectives. Site-specific conditions in this project area are consistent with the general discussion in the Siuslaw Watershed analysis, which identified management opportunities for density management treatments in Riparian Reserves. The following is a site-specific analysis of the effect of the Proposed Action on attainment of the ACS objectives:

Objective 1: The Proposed Action would maintain and contribute to the restoration of the distribution, diversity, and complexity of watershed and landscape-scale features. Treatment of all but the inner 100 feet of the Riparian Reserves of Streams 7-12 would hasten the development of late-successional structural characteristics in the residual stand, such as larger diameter trees and canopy layering, by lessening competition. Falling and leaving trees would increase the amount of downed woody debris.

Objective 2: The management activities in the Riparian Reserves would maintain spatial and temporal connectivity within the watershed because of the influence of the residual stand, the unthinned buffers in the Riparian Reserves, and the temporary nature of the road construction. New road construction would not alter the existing drainage network because there would be no stream crossings, and roads would be at least 200 feet from streams.

Objective 3: The Proposed Action would maintain and contribute to the restoration of the physical integrity of the aquatic systems because the residual stands in areas thinned would maintain root strength; the untreated portions of Riparian Reserves would ensure that thinning would not affect streambank integrity; management activities throughout the project area would not cause alteration in water flows that could affect channel morphology; and the unthinned buffers would filter potential sediments before they reach the streams. Trees felled and left on site within or near stream channels would create an immediate supply of coarse woody debris, and thinning in Riparian Reserves would speed the development of a future supply of larger woody debris. Providing an immediate and future supply of woody debris to the streams would also help restore the sediment regime; the flow regime; the deposition of gravels; and the formation of deep pools, back-water and off-channel aquatic habitat. Streambank integrity would also be maintained as no yarding would occur across stream channels.

Objective 4: The Proposed Action would maintain water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. The Proposed Action would not alter stream temperature because the untreated portions of Riparian Reserves adjacent to the streams would maintain existing shading of streams.

Objective 5: The Proposed Action would maintain and contribute to the restoration of the sediment regime under which this aquatic ecosystem evolved. The untreated portions of Riparian Reserves would adequately filter any sediment from the uplands before it reaches the stream because of the generally gentle topography, the low risk of hillslope erosion, and the low risk of substantial sediment inputs from upland areas. The direct disturbance of road reconstruction and decommissioning could result in production of a minor amount of sediment only during the immediate periods of reconstruction and decommissioning, which would have negligible effects on the aquatic ecosystem. No new road construction would occur within the Riparian Reserves, and existing roads would be only temporarily reconstructed.

Objective 6: The Proposed Action may contribute to a minor increase in peak flows, summer low flows, and overall water yield because of the removal of trees and the construction of roads and landings. The exact extent of the effect on flow from tree removal is not certain; most research on hydrologic response to timber harvesting has been conducted in clearcuts, and the effect of density management treatments on stream flows has not yet been extensively studied. The unit is at elevations that would very rarely experience rain-on-snow events. Large openings in the canopy would be avoided with the retention of 60 trees/acre. Evapotranspiration and interception would decrease within the treatment area due to the removal of the overstory. The most likely changes to peak flows from this action would be during smaller storms in autumn or early winter when less precipitation is needed to recharge soil moisture. Large peak flows associated with flooding or channel alteration are likely to be negligibly affected by this action.

Most of the other factors associated with changes to peak flows would not be a concern with the Proposed Action. Compaction and reduction of infiltration rates from road construction would be substantially mitigated by sub-soiling roads upon completion of the project. The proposal includes sub-soiling an existing road upon completion of the project. This would be an improvement over existing conditions. The stream network would not be extended by the temporary roads and no new stream crossings are proposed. Yarding methods would incorporate the applicable Best Management Practices listed in Appendix C of the Eugene District RMP, including (1) restricting tractor operations to periods of low soil moisture, (2) limiting ground based yarding to slopes less than 35 percent, and (3) requiring one-end suspension for cable yarding. These practices, along with subsoiling tractor skid trails, would minimize the amount of compaction that would affect infiltration rates and soil moisture storage capacity.

Objective 7: The Proposed Action would maintain existing patterns of floodplain inundation and water table elevation because it would have little effect on existing flow patterns and stream channel conditions.

Objective 8: The Proposed Action would contribute to the restoration of the species composition and structural diversity of plant communities and habitat to support well-distributed populations of some riparian-dependent species by speeding the development of late-successional forest characteristics within the Riparian Reserves. The Proposed Action would cause a reduction in canopy closure for several decades in the thinned areas, which could result in some micro-climatic alteration or other adverse effects for species that prefer complete canopy closure or that do not tolerate disturbance. Any such effect would be minor because of the effect of the residual trees, the extensive untreated reserve areas, and because of the current poor habitat condition of the stands for most species associated with late-successional forests.

Thinning and single tree felling in Riparian Reserves would speed the development of a future supply of large woody debris, which would maintain and contribute to the restoration of the physical complexity of the aquatic system.

Objective 9: The Proposed Action would maintain and contribute to the restoration of habitat to support well-distributed populations of some riparian-dependent species by providing an immediate supply of woody debris to the streams and by speeding development of future large woody debris in the thinned portions of the Riparian Reserves. This would help restore the deposition of gravels and the formation of deep pools, back-water and off-channel aquatic habitat.

Based on the above analysis of the effect on attainment of the ACS objectives, the Proposed Action is consistent with the ACS and the objectives for the Riparian Reserves, and would not prevent or retard attainment of any of the ACS objectives.

ISSUE 2: Effects on Red Tree Voles

Opening the canopy by thinning would most likely degrade habitat for red tree voles in the treatment area of the stand. The effect on red tree vole habitat of thinning forest stands is presently unknown. Red tree voles can tolerate edges and at times appear to seek them out, possibly because the trees have fuller crowns along edges. However, opening the canopy would make voles more vulnerable to predators. The canopy is not expected to close for several decades. Accelerating the development of late-successional stand characteristics as a result of the Proposed Action would ultimately benefit this species over the long term. The physical integrity of the red tree vole sites would be protected in Habitat Areas that include Riparian Reserves (as described in Management Recommendations for the Oregon Red Tree Vole, *Arborimus longicaudus*, Version 2.0, 2000). Due to the 100 acre reserve in the north of the stand, red tree voles are expected to persist in the stand (see **Cumulative Effects**).

ISSUE 3: Effects on Attainment of Late-Successional Reserve Objectives

Goal 1: The Proposed Action would hasten the development of late-successional habitat and ecosystems by accelerating diameter growth; encouraging canopy layering; increasing crown ratios; and providing an immediate pulse of coarse woody debris.

Thinning the stand would somewhat reduce the natural creation of small diameter snags and coarse woody debris over the next few decades by harvesting trees that would have soon died from suppression mortality. However, cutting and leaving 10 TPA on site now as coarse woody debris would mitigate this impact. The first pulse of coarse woody debris creation would leave an average of approximately 400 cubic feet per acre of coarse woody debris. Additional pulses of coarse woody debris and snag creation over the next ten years would add 400 cubic feet per acre of coarse woody debris and 3 snags per acre greater than 20 inches DBH. Assuming the existing coarse woody debris levels are low (800-1200 cubic feet per acre), the Proposed Action would result in an average of 1600-2000 cubic feet per acre of coarse woody debris in the treatment areas after ten years. This would be consistent with Alternative #2 for coarse woody debris creation described in the LSR Assessment (p. 67).

Goal 2: The Proposed Action would create and maintain biological diversity associated with native species and ecosystems because minor conifers and snags would be retained, key areas would be left untreated, and 100 shade-tolerant conifer seedlings would be planted on half the treated area. Rocky openings would be protected within untreated Riparian Reserves. Untreated areas provide spaces with more closed canopy. The area with the highest number of

mollusks would be reserved and would provide colonists for the treated portions of the stand. Red tree voles and spotted owls are analyzed separately.

ISSUE 4: Effects on Fungi Habitat and Mushroom Gathering

The effects of partial harvest on edible fungi are difficult to quantify. When a host tree is killed, the mushrooms associated with it die also, and reestablishment in a clear-cut scenario can take many decades. Reestablishment time in a partial harvest may be similar to a clearcut, or may perhaps be less, as not all hosts are killed and reestablishment may benefit from disturbance of soil and moisture systems. However, understory vegetative regrowth in thinned stands is less vigorous and unlike that of the original, closed stand. This appears to affect mushroom production very negatively, and may affect the collector's ability to see and access those mushrooms that do fruit after tree harvest is complete. Considerable tracts within the project area would not have trees cut or would only have patch treatments. Therefore, some areas should retain their abilities to produce the edible mushrooms collectors want.

ISSUE 5: Effects on Spotted Owl Sites and Critical Habitat

The action may affect but is not likely to adversely affect spotted owls. The project area likely functions as foraging habitat for the Letz Creek site. By reserving the northern 100 acres for red tree voles as well as the southern red tree vole Habitat Area, the stand should continue to function as foraging habitat although limited. The thinning treatment would degrade foraging habitat by opening up the canopy and possibly disturbing the downed wood. As the stand grows and the canopy closes, foraging habitat would improve. Dispersal habitat for spotted owls is low to the east but adequate to the north, south and west. The prescription would maintain canopy closure above 40%, maintaining dispersal habitat; however, it would be degraded for approximately 10 years because the canopy would be opened. Approximately 2% of the dispersal habitat in the CHU would be affected. Accelerating the development of late-successional stand characteristics as a result of the Proposed Action would ultimately improve critical habitat, both foraging and dispersal.

C. ALTERNATIVE A

ISSUE 1: Effects on Attainment of ACS Objectives

Alternative A includes management within the Riparian Reserves similar to the Proposed Action. Alternative A would have similar effects on Objectives 1-5 and 7-9. The following is a site-specific analysis of the effect of Alternative A on attainment of ACS Objective 6.

> **Objective 6:** Alternative A may contribute to a smaller increase in peak flows, summer low flows, and overall water yield than the Proposed Action because more trees would be retained. All other effects on attainment of Objective 6 would be similar to the Proposed Action.

Based on the above analysis of the effect on attainment of the ACS objectives, Alternative A is consistent with the ACS and the objectives for the Riparian Reserves, and would not prevent or retard attainment of any of the ACS objectives.

ISSUE 2: Effects on Red Tree Voles

The effects on red tree voles from the initial thin would be slightly less than from the Proposed Action. However, at the point when the canopy closes again and the stand is recovering, another thinning would occur. Wildlife habitat would be disturbed several times instead of just once.

Multiple entries would disrupt red tree voles' attempts to disperse back into and through the treated stand.

ISSUE 3: Effects on Attainment of Late-Successional Reserve Objectives

Goal 1: Alternative A is expected to have effects on LSR objectives similar to the Proposed Action.

Goal 2: Alternative A would not create biological diversity as quickly as the Proposed Action because no shade-tolerant conifer seedlings would be planted. Natural seeding would contribute to diversity at a slower rate. Multiple entries would disrupt native species' attempts to disperse back into and through the treated stand. Other effects on Goal 2 would be similar to the Proposed Action.

ISSUE 4: Effects on Fungi Habitat and Mushroom Gathering

The effects of Alternative A on fungi habitat and mushroom gathering are not fully known. However, whereas a lighter initial treatment may cause less initial damage, repeated entries may add up to a similar or more negative effect.

ISSUE 5: Effects on Spotted Owl Sites and Critical Habitat

The effects to spotted owls from the initial thin would be slightly less than from the Proposed Action. However, at the point when the canopy closes again and the entire stand is again functioning well as foraging and dispersal habitat, another thinning would occur. Spotted owls do avoid recently treated stands and might avoid using the area for a longer period of time than they would have with only one entry. This alternative may affect but is not likely to adversely affect spotted owls. The effects to critical habitat would be very similar to the Proposed Action.

D. ALTERNATIVE B

ISSUE 1: Effects on Attainment of ACS Objectives

Alternative B includes management within the Riparian Reserves similar to the Proposed Action. Alternative B would have similar effects on all ACS Objectives.

Based on the above analysis of the effect on attainment of the ACS objectives, Alternative B is consistent with the ACS and the objectives for the Riparian Reserves, and would not prevent or retard attainment of any of the ACS objectives.

ISSUE 2: Effects on Red Tree Voles

The effects on red tree voles from the thinning as well as the protection of the physical integrity of the nest sites is similar to the Proposed Action. However, see Cumulative Effects for a discussion on the long-term persistence on red tree voles in the stand.

ISSUE 3: Effects on Attainment of Late-Successional Reserve Objectives

Goal 1: Alternative B is expected to have effects on LSR objectives similar to the Proposed Action.

Goal 2: Alternative B is expected to have effects on LSR objective similar to the Proposed Action except in the area north of Road 20-5-20.1, where the current biological diversity would not be maintained.

ISSUE 4: Effects on Fungi Habitat and Mushroom Gathering

The effects of Alternative B on fungi habitat and mushroom gathering would be similar to the Proposed Action.

ISSUE 5: Effects on Spotted Owl Sites and Critical Habitat

Alternative B may affect and is likely to adversely affect spotted owls because of the possibility of a severe decline in red tree voles from the stand. The effects to dispersal habitat and critical habitat would be similar to the Proposed Action but greater due to the larger treatment area.

C. ALTERNATIVE C (NO ACTION)

ISSUE 1: Effects on Attainment of ACS Objectives

Alternative C includes no management within Riparian Reserves. Alternative C would maintain existing trends. Alternative C would not retard attainment of Objectives 2, 4, or 7. The following is a site-specific analysis of the effect of Alternative C on attainment of the remaining ACS objectives:

Objective 1: Alternative C would not hasten the development of late-successional structural characteristics in the residual stand, such as larger diameter trees and canopy layering, by lessening competition, as the action alternatives would. There would be no creation of downed woody debris.

Objective 3: Alternative C would not create downed woody debris to help restore the sediment regime. There would be no rehabilitation of stream crossings to remove existing fills.

Objective 5: Alternative C would not contribute to the restoration of the sediment regime through road decommissioning. There would not be an immediate increase in sedimentation and erosion during rehabilitation operations, nor would there eventually be an overall decrease in road-related sediment production and erosion relative to existing conditions.

Objective 6: Alternative C would have no impact on peak flows, summer low flows, or overall water yield.

Objective 8: Alternative C would not speed the development of late-successional forest characteristics within the Riparian Reserves, and would not have the immediate supply of large woody debris felled into the streams. Thus, Alternative C would not contribute to the restoration of the physical complexity of the aquatic system.

Objective 9: Alternative C would not contribute to the restoration of habitat to support well-distributed populations of some riparian-dependent species by providing an immediate supply of woody debris to the streams. There would be no restoration of the deposition of gravels or the formation of deep pools, back-water or off-channel aquatic habitat.

Based on the above analysis of the effect on attainment of the ACS objectives, Alternative C is consistent with the ACS and the objectives for the Riparian Reserves, and would not prevent or retard the natural attainment of any of the ACS objectives.

ISSUE 2: Effects on Red Tree Voles

The "No Action" alternative would have no immediate effects on red tree vole habitat. It would

neither displace this species, cause the death of some individuals, nor fragment their population while the thinned stand recovered. The expected acceleration of late-successional stand characteristics would not occur and future habitat might not be as high of quality.

ISSUE 3: Effects on Attainment of Late-Successional Reserve Objectives

Alternative C is not expected to affect attainment of LSR objectives relative to the natural rate of attainment. However, when compared to the action alternatives, Alternative C would not achieve attainment of some portions of the goals as quickly.

Goal 1: Alternative C would not hasten the development of late-successional habitat because competition would not be reduced. The natural creation of small diameter snags and coarse woody debris would continue; however, there would be no pulses of coarse woody debris created over the years.

Goal 2: Alternative C would not create biological diversity as quickly as the Proposed Action because no shade-tolerant conifer seedlings would be planted. Alternative C would have no immediate effects on wildlife habitats. It would not displace wildlife species that are sensitive to or unable to recover from disturbance based on their life history needs or current population distribution. The stand and its correlated wildlife species populations would not be fragmented for several decades. However, the acceleration of late-successional stand characteristics that would ultimately benefit most species using these habitats would not be realized without stand treatment.

ISSUE 4: Effects on Fungi Habitat and Mushroom Gathering

Alternative C would not affect fungi habitat or mushroom gathering.

ISSUE 5: Effects on Spotted Owl Sites and Critical Habitat

The "No Action" alternative would have no immediate effects on spotted owls or critical habitat. It would not degrade spotted owl dispersal habitat or foraging habitat. Compared with the action alternatives, the stand would grow most slowly into late-successional habitat. Development of late-successional characteristics could be delayed by several decades compared to the action alternatives.

E. ALTERNATIVE D

ISSUE 1: Effects on Attainment of ACS Objectives

Alternative D includes no management within Riparian Reserves, except for the single tree felling adjacent to Stream 7. Alternative D would have effects similar to those described under Alternative C (No Action) for Objectives 2, 3, 4, and 7. This alternative would not retard attainment of Objectives 2, 3, 4, or 7. The following is a site-specific analysis of the effects of Alternative D on attainment of the remaining ACS objectives:

Objective 1: Similar to Alternative C (No Action), this alternative would not hasten the development of late-successional structural characteristics in the Riparian Reserves. The creation of downed woody debris would not occur in the outer one-half of the Riparian Reserves of streams 7-12 as under the Proposed Action. This alternative would achieve the benefits of single tree release for spatial diversity adjacent to Stream 7 as under the Proposed Action.

Objective 5: This alternative would create a lower level of disturbance in the construction/ renovation of roads than the Proposed Action, Alternative A, or Alternative B, by approximately 3,200 feet. Less ground disturbance would occur under this alternative than under the Proposed Action, Alternative A, or Alternative B because less area would be harvested and because tractor yarding would not occur. Slightly less existing road would be renovated and rehabilitated under this alternative than under the Proposed Action or Alternative A, and even less than Alternative B. The potential for compaction, erosion, and sedimentation would be similar to or lower than the other action alternatives.

Objective 6: This alternative would contribute to similar or lower increases in peak flows, summer low flows, and overall water yield than the Proposed Action, Alternative A, or Alternative B.

Objective 8: Similar to the Alternative C (No Action), Alternative D would not speed the development of late-successional forest characteristics within the Riparian Reserves. This alternative would create an immediate supply of large woody debris felled into the Stream 7, as described under the Proposed Action. However, this alternative would not contribute to the restoration of the physical complexity of the aquatic system to the extent that would be realized under the Proposed Action, Alternative A or Alternative B.

Objective 9: This alternative would contribute to the restoration of habitat for riparian-dependent species, but to a lesser extent than described under the Proposed Action, Alternative A, or Alternative B. Falling trees into Stream 7 would help restore deposition of gravels, formation of pools, back-water and off-channel habitat. However, this alternative would not hasten the development of future large wood because thinning in Riparian Reserves would not occur.

ISSUE 2: Effects on Red Tree Voles

Alternative D would open the canopy to levels similar to those described under the Proposed Action or Alternative B, but on fewer acres. Immediate habitat degradation would be similar to that described under the Proposed Action, but would occur on approximately 70 fewer acres. However, benefits to this species through acceleration of the development of late-successional stand characteristics would not occur on as many acres as under the Proposed Action.

ISSUE 3: Effects on Attainment of Late-Successional Reserve Objectives

Goal 1: Alternative D would create and maintain late-successional habitat and ecosystems similar to the Proposed Action, but on fewer acres. Areas that would not be treated would have effects similar to Alternative C (No Action).

Goal 2: Alternative D would create and maintain biological diversity similar to the Proposed Action, but on fewer acres. Areas that would not be treated would have effects similar to Alternative C (No Action).

ISSUE 4: Effects on Fungi Habitat and Mushroom Gathering

The effects of Alternative D on fungi habitat and mushroom gathering would be similar to those described for the Proposed Action, but on fewer acres.

ISSUE 5: Effects on Spotted Owl Sites and Critical Habitat

Alternative D would have effects on spotted owl sites and critical habitat similar to the Proposed

Action, but on fewer acres. However, acceleration of the development of late-successional stand characteristics would not occur. Critical habitat would not improve as rapidly under this alternative as under the Proposed Action or Alternative B.

F. CUMULATIVE EFFECTS

This analysis incorporates by reference the analysis of cumulative effects in the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl (NSO FSEIS) (Chapter 3 & 4, pp. 4-10) and the RMP EIS (Chapter 4). Those documents analyze most cumulative effects of timber harvest and other related management activities. None of the alternatives analyzed here would have cumulative effects on soils or air quality beyond those effects analyzed in the above documents. The following section supplements those analyses, providing site-specific information and analysis particular to the alternatives considered here.

The section to the northwest (20-5-3, Douglas Creek) has been analyzed for treatment in 2002. Other future proposed treatment areas include Tucker Creek (20-4-27) in the year 2004. Operations on Tyrrell, a density management sale, were completed in winter 2000. Other sales in the last five years include Squeeze Play (operations completed 1996); Gowdy's Tuckered (1997); Bottomline (1997); Tucker 2 (1999) Gowdyville (1999); and Smith Progeny (2000).

On private lands in the watershed, more intensive timber management actions, including clearcutting and broadcast burning, are occurring and are likely to continue. Also, some forest stands on private land may be converted to non-forest land, for either agricultural or residential use. Private lands provide habitat for deer, elk, and neotropical birds but will primarily alternate between early- to mid-seral stages.

The Proposed Action, together with past and current harvesting and other disturbances, could contribute to a cumulative loss of habitat for species that prefer complete canopy closure until the canopy closure reaches pretreatment levels. However, due to the young age of the stand and other nearby stands planned to be thinned, species associated with old growth habitat are not expected to be greatly affected. The Proposed Action, together with other density management treatments on BLM-administered lands, and protection of other BLM-administered lands, could have a cumulative effect of increasing the habitat area for species associated with late-successional forests as the stand ages (NSO FSEIS Chapters 3 & 4, pp. 49, and Appendix B, pp. 47-48; Tappeiner et al. 1992).

Huff, Holthausen, and Aubry (1992) found that stand size made a significant difference in whether or not red tree voles inhabited a stand. Red tree voles were captured in 22% of 79 stands greater than 100 acres but in only 1 percent of the 12 stands under 100 acres; no voles were captured in stands less than 75 acres. Huff, et al suggests that red tree voles would benefit from the retention of stands substantially larger than 75 acres. Although only a portion of the northern part of the stand is old growth, the additional non-reserve LSR area proposed to be left untreated would provide a closed canopy forest with a patch of old growth and other remnant trees of approximately 100 acres. The private landowners to the east, north, and west have either already harvested their land or may do so in the near future. By providing a reserve of 100 acres, red tree voles are expected to persist in the stand under the Proposed Action, Alternative A, and Alternative D.

In Alternative B, the portion of the northeast quarter section north of Road 20-5-20.1 would be harvested outside of Habitat Area reserves for red tree voles. The area to be reserved totals approximately 75 acres, including the old growth patch, the Riparian Reserves, and the Habitat

Area. Currently, the private land to the east is a young plantation. The parcels to the north and to the west are privately-owned and could be harvested. In the event that the BLM carried out Alternative B, and each private landowner chose to cut his stand to the property line, the Habitat Area for red tree voles could be left within an isolated 75 acre patch. This condition could persist for several decades until the thinned stand recovered. According to the study conducted by Huff et al, no voles were captured in stands smaller than 75 acres, and very few were captured in stands between 75 and 100 acres in size. Under this scenario, Alternative B, coupled with potential actions by neighboring landowners, could lead to the severe decline of the red tree vole population within the reserved area.

Each of the action alternatives, together with other harvesting and road construction, could cause a minor increase in water flows and overall water yield during operations. However, the action alternatives would eventually contribute to a net decrease in road density in the watershed with the decommissioning of 7,900 (Alternative D), 8,800 (Proposed Action and Alternative A), and to 9,000 (Alternative B) feet of existing road.

Cumulative impacts from roads that are subsoiled and allowed to revegetate are considerably less than the effects of roads which are left as permanent dirt, gravel, or pavement. Research on the effects of subsoiling on underground fungal development is not yet final, but short-term negative effects may be outweighed by long-term gains from lowered soil compaction.

The action alternatives would set back the natural successional patterns in the lower canopy and herbaceous layer. There is also a tendency for non-native and more aggressive native species to monopolize habitats once occupied by more complex communities of co-adapted natives. The exclusion of late-successional native species may be long term or permanent; habitat for and presence of some sensitive species continues to be cumulatively reduced across the landscape in this way. Subsequent re-entry of the stand for a “final harvest” is not intended; therefore, the benefits to various species which require large trees and downed woody material, and limby, more open-grown and multi-layered stand structure may well offset the short-term negative effects of the disturbance. Lichens, fungi, and many vascular plants are known to benefit from the structural characteristics the action alternatives are intended to speed. The actual effects on other organisms than the trees themselves, however, are poorly known.

Alternative A would have cumulative effects on wildlife generally similar to the Proposed Action, but of a higher magnitude over the years, as entries would be repeated.

Alternative B would have cumulative effects on wildlife generally similar to the Proposed Action, but of slightly higher magnitude in the short term as more acres would be harvested.

Alternative C would have no cumulative effect on wildlife. By maintaining a dense, even-aged stand, this alternative would contribute to a cumulative effect of future mature stands within the LSR that lack old-growth characteristics, a negative effect on wildlife species associated with late-successional forests.

Alternative D would have cumulative effects on wildlife generally similar to the Proposed Action, but of slightly lower magnitude in the short term because fewer acres would be harvested.

VI. CONSULTATION AND COORDINATION

A. LIST OF PREPARERS

The proposed action and alternatives were developed and analyzed by the following

interdisciplinary team of BLM specialists.

Jeff Apel	Engineering
Karin Baitis	Soils
Alison Center	Threatened and Endangered Wildlife Species
Alan Corbin	Timber Management
Chuck Fairchild	Botany
Richard Hardt	Ecology
Pete O'Toole	Silviculture
Mike Southard	Cultural Resources
Steve Steiner	Hydrology
Chuck Vostal	Fisheries
Molly Widmer	Botany
Barry Williams	Soils
Janet Zentner	Forestry

B. CONSULTATION

Pursuant to the Endangered Species Act, formal consultation with the U.S. Fish and Wildlife Service (USFWS) on this proposed action has been completed. The USFWS issued a Biological Opinion on October 4, 2000 in which they concluded that the proposed action would not jeopardize the continued existence of the northern spotted owl or adversely modify critical habitat.

Consultation with the National Marine Fisheries Service (NMFS) has been completed, and a Letter of Concurrence (LOC) was received on March 22, 2001.

The State Historic Preservation Office (SHPO) has been notified of this proposal and has determined, in accordance with 36 CFR 800.5(b), that the proposed undertaking would have no effect on cultural resources.

The Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians were notified of this project during the scoping process, requesting information regarding tribal issues or concerns relative to the project. A response was received outlining general concerns over protection of cultural resources.

C. PUBLIC PARTICIPATION

A public meeting was held in the Lorane Grange in Lorane, Oregon on March 11, 1998. Approximately 17 local residents attended; many were adjacent landowners. Several issues were identified by the residents. Most of these issues were natural resource-oriented and fell under the categories of ACS Objectives, LSR Objectives, and S & M species. Several issues were not related to natural resources but were questions regarding the Proposed Action itself. Other issues were related to follow-up with the public, such as a field trip and future meeting. These will be scheduled soon after the release of this document.

A public notice advertising the availability of this EA and preliminary FONSI appeared in the Eugene Register-Guard on July 4, 2001. Additionally, the environmental assessment was sent to nine groups or businesses, eight state or local government agencies, and 27 individuals.

Another public meeting and field trip was held on July 18, 2001, during which the alternatives in the EA were presented and participants toured the project area to discuss the Proposed Action.

Four people from the local area attended.

A 30-day public comment period for the EA closed on August 3, 2001. Letters were received from:

Doug Heiken, Oregon Natural Resources Council, Eugene, OR
George Sexton, American Lands Alliance, Eugene, OR.
Joanne Vinton, Eugene, OR.
Fabian Lawrence, Cottage Grove, OR.
Bruce and Alix Mosieur, Lorane, OR.
Curtin Mitchell, Lorane, OR.

The paragraphs below summarize the public comments and the response to the comments. Comments addressed five major categories: the need for roads; attainment of Aquatic Conservation Strategy (ACS) objectives; contracting issues; general forest health issues; and impacts to neighboring rural residents.

Need for Roads

Comment: Four commentors suggested an alternative in which there would be no new road construction. They suggested that only the area that could be reached from existing roads be treated.

Response: A new alternative has been added (Alternative D). This alternative describes using the existing 20.1 road and Spur H, cable yarding only, and no treatment in Riparian Reserves.

Comment: One commentor suggested an alternative that would include no road renovation along with no new road construction. As defined in this document, even the existing roads (20.1 road and Spur H) would require some amount of renovation. This would essentially be the No Action Alternative, in that road renovation would be needed under any action alternative to access the project area.

Attainment of ACS Objectives

Comment: Two commentors expressed concerns that road construction, landings, and tractor yarding would contribute to peak flows and sediment loading, thus making the Proposed Action in noncompliance with the ACS objectives.

Response: As noted on page 12 of the EA (ACS Objection 6), road and landing construction and tractor yarding would not measurably contribute to peak flows.The analysis for ACS Objective 6 has been revised to more clearly describe this. Similarly, road and landing construction would have a negligible effect on the aquatic ecosystem in terms of the sediment regime (ACS Objective 5, page 12).

Comment: Two commentors noted that tractor (ground-based) yarding cannot reasonably be described as a "mitigation measure" for soils.

Response: The comment refers to the second paragraph under ACS Objective 6 on page 12 that describes how subsoiling roads would reduce compaction and restore infiltration rates, and how the yarding method would minimize compaction. This paragraph has been rewritten to clarify the relationship between the yarding BMPs that would minimize the amount of

compaction, and subsoiling skid roads that would ameliorate what little compaction that would be anticipated.

Comment: Two commentors stated that mitigation should not be used as a substitute for preventing habitat degradation. The commentors refer to the Northwest Forest Plan's Riparian Reserve standard WR-3 – "Do not use mitigation or planned restoration as a substitute for preventing habitat degradation."

Response:

The Riparian Reserve standard WR-3 applies to actions within Riparian Reserves. The Proposed Action does not involve any new road construction or landings within Riparian Reserves. The Proposed Action may include some ground-based yarding in the outer portion of the 400-foot Riparian Reserves for Streams 7 and 9, but no ground-based yarding would occur within 200 feet from any stream (EA, p.5). As detailed in the EA, the ground-based yarding would not result in habitat degradation of the Riparian Reserves and would not prevent or retard attainment of any of the Aquatic Conservation Strategy objectives. Specifically with regard to sediment, the ground-based yarding would not retard or prevent restoration of the sediment regime. The small amount of sediment that might be produced during use and sub-soiling of any skid roads would be filtered by the 200-feet or more of untreated Riparian Reserve. Therefore, there would be no adverse effect on the sediment regime of the streams resulting from road construction, landings, or ground-based yarding.

Comment: One commentor stated that the EA does not explain how ground-based yarding and the placement of tailhold and guyline trees in the Riparian Reserves would help attain Aquatic Conservation Strategy objectives.

Response: Ground-based yarding and the placement of tailhold and guyline trees in the Riparian Reserves may occur in the Proposed Action. These design features are not expected or intended to contribute directly to attainment of Aquatic Conservation Strategy objectives, but are needed to implement the overall action of thinning the Riparian Reserve, which is aimed at attaining Aquatic Conservation Strategy objectives. Thinning in the Riparian Reserve is designed to restore the diversity and complexity of landscape-scale features; to restore the structural diversity of plant communities in riparian areas; to restore habitat for riparian-dependent species; and to speed the development of large trees as a future supply of coarse woody debris for streams and riparian areas. If trees were cut as described in the Proposed Action, but left in place on the ground, it would create an unacceptable risk of Douglas-fir bark beetle infestation or wildfire that could result in loss of some or all of the riparian forest stand, which would prevent or retard attainment of Aquatic Conservation Strategy objectives.

Contracting

Comment: One commentor suggested that the project length should be limited to less than a year, rather than three years as described in the EA.

Response: The duratioin of the project is based on limits established to minimize project effects. Factors that extend the duration of the project include: (1) the number of acres to be harvested in relationship to the length of road; (2) the use of natural surface roads, rstricting usage to the dry season (less than four months a year); (3) the limitation of tractor yarding to periods of low soil moisture; and (4) protection of possible nesting owls, precluding operations

until after July 7. Additionally, summertime operations may be suspended during fire closures.

However, a shorter time period is required in which to accomplish specific actions within the project. Treatment areas of the project adjacent to a portion of Spur C, Spur H and a portion of Road 20-5-20.1 would be completed in the same year that the roads are renovated or constructed. These areas would be small enough to be completed in one year; thus, disturbance would be limited to a one year period.

Comment: One commentor suggested that BLM use service contracts because this would allow more restoration to be accomplished and would limit the incentive to over harvest.

Response: Both service contracts and timber sale contracts may be used effectively to accomplish restoration activities. For the action alternatives described in this EA, a timber sale contract would be used to complete restoration activities by thinning trees in both the Riparian Reserve and LSR LUAs.

There would be no incentive to "overharvest" on the part of the operator. Harvest of trees beyond that specified by the timber sale contract is prevented by a strictly enforced sale contract, the administration of the contract by a sale administrator, reserve trees marked in orange and the project area boundary being blazed, posted and painted. If trees are cut outside of the scope of the contract, financial penalties are enforced that take the profit out of such action.

Forest Health

Comment: Several commentors supported the idea of thinning dense younger stands in LSR to achieve LSR objectives.

Response: This is the intent of the Proposed Action, and is something the Eugene District's LSR restoration team is examining throughout LSR 267, which includes the Fawn Creek project area.

Comment: One commentor felt that the thinning prescription in the Proposed Action was too great and that a 20% thin would be more reasonable.

Response: Alternative A examines a lighter thinning prescription, with multiple entries. This prescription would thin the stand to approximately 110 trees per acre. A 20% thin would result in retention of approximately 190 TPA. Such a light thinning would not adequately address the project's purpose and need (EA, pg 1) and was not analyzed.

Comment: A commentor asked if underplanting would be done in treated areas, and if so, to what level.

Response: See EA, page 3. Under the Proposed Action, approximately half of the proposed harvest area would be planted to approximately 100 shade-tolerant conifers per acre.

Comment: One commentor felt that implementing the Proposed Action was not worth the potential risk of adverse impacts. The commentor felt that spotted owls and red tree voles seemed to be doing well in the project area.

Response: See EA, pages 8-9 for a description of existing spotted owl and red tree vole habitat. Pages 12-19 of the EA describe the tradeoffs between short-term adverse impacts

and long term benefits that would be expected under each alternative. Alternative C (No Action) results in fewer short term adverse impacts, but also has fewer long term benefits.

Comment: Two commentors felt that it would be inappropriate to fall standing snags and hardwoods for safety reasons in LSR and Riparian Reserves.

Response: As noted on page 4, snags and hardwoods felled for safety reasons would be left on-site as down wood. These features are important attributes of LSR and Riparian Reserves. Snags and hardwoods would be felled only if required by the Occupational Safety and Health Administration (OSHA) to protect the safety of forest workers. Only Alternative C (No Action) would guarantee that none of the existing snags or hardwoods would be felled for safety reasons.

Comment: Two commentors suggested that certain elements of Alternative B should be incorporated into the Proposed Action, specifically not treating areas around an older stand near Stream 14 and the rocky openings around Streams 17 and 18.

Response: These areas would not be included in the proposed treatment area under the Proposed Action. See map, "Proposed Action and Alternative A." Under the Proposed Action, the area north of the 20.1 road would be left untreated.

Comment: Two commentors questioned whether or not the US Fish and Wildlife Service would be able to complete formal consultation on this project, as required by Section 7 of the Endangered Species Act.

Response: As noted on page 21, the US Fish and Wildlife Service issued its Biological Opinion for this project on October 4, 2000. They concluded that this action would not jeopardize the continued existence of the northern spotted owl nor adversely modify critical habitat of the northern spotted owl.

Impacts to Neighboring Residents

Comment: One commentor expressed concern that the Proposed Action and other action alternatives would adversely impact the environment around where they live.

Response: This concern was raised during the public meetings regarding this action. As a result, the Proposed Action and Alternatives A and B include "property buffers" on the east and south sides of the project area (EA, page 4).

VII. REFERENCES

USDA Forest Service and USDI Bureau of Land Management. February 1994. Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. Portland, Oregon.

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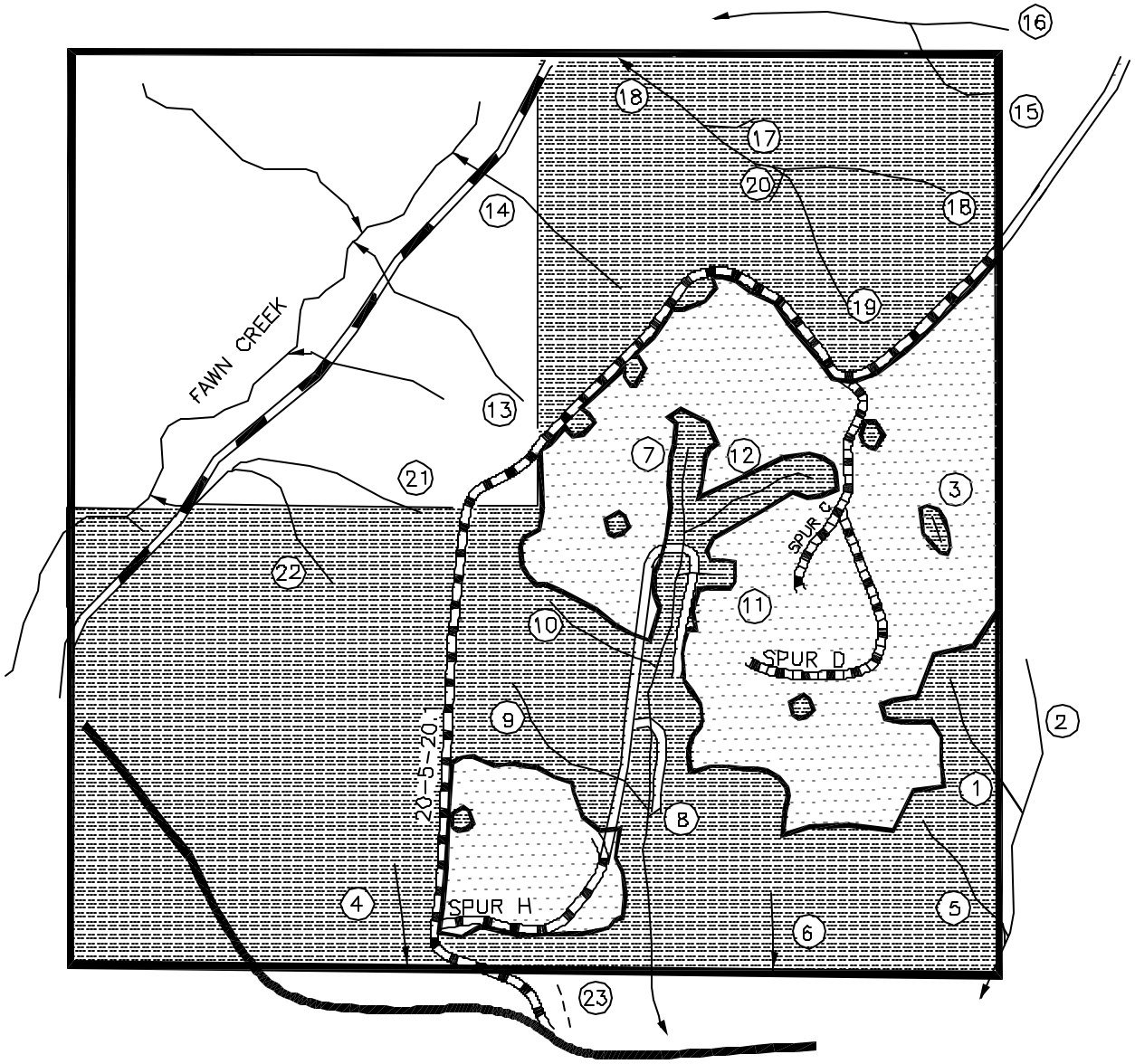
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
FAWN CREEK LSR
T20S, R5W, SECTION 17
PROPOSED ACTION & ALTERNATIVE A

6/27/01



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SCALE

LEGEND

DENSITY MANAGEMENT AREA

RESERVE AREA

(#) HYDROLOGICAL FEATURE NUMBER

ROAD TO BE CONSTRUCTED
ROAD TO BE RENOVATED
PAVED ROAD
ROCKED ROAD
DIRT ROAD

UNITED STATES
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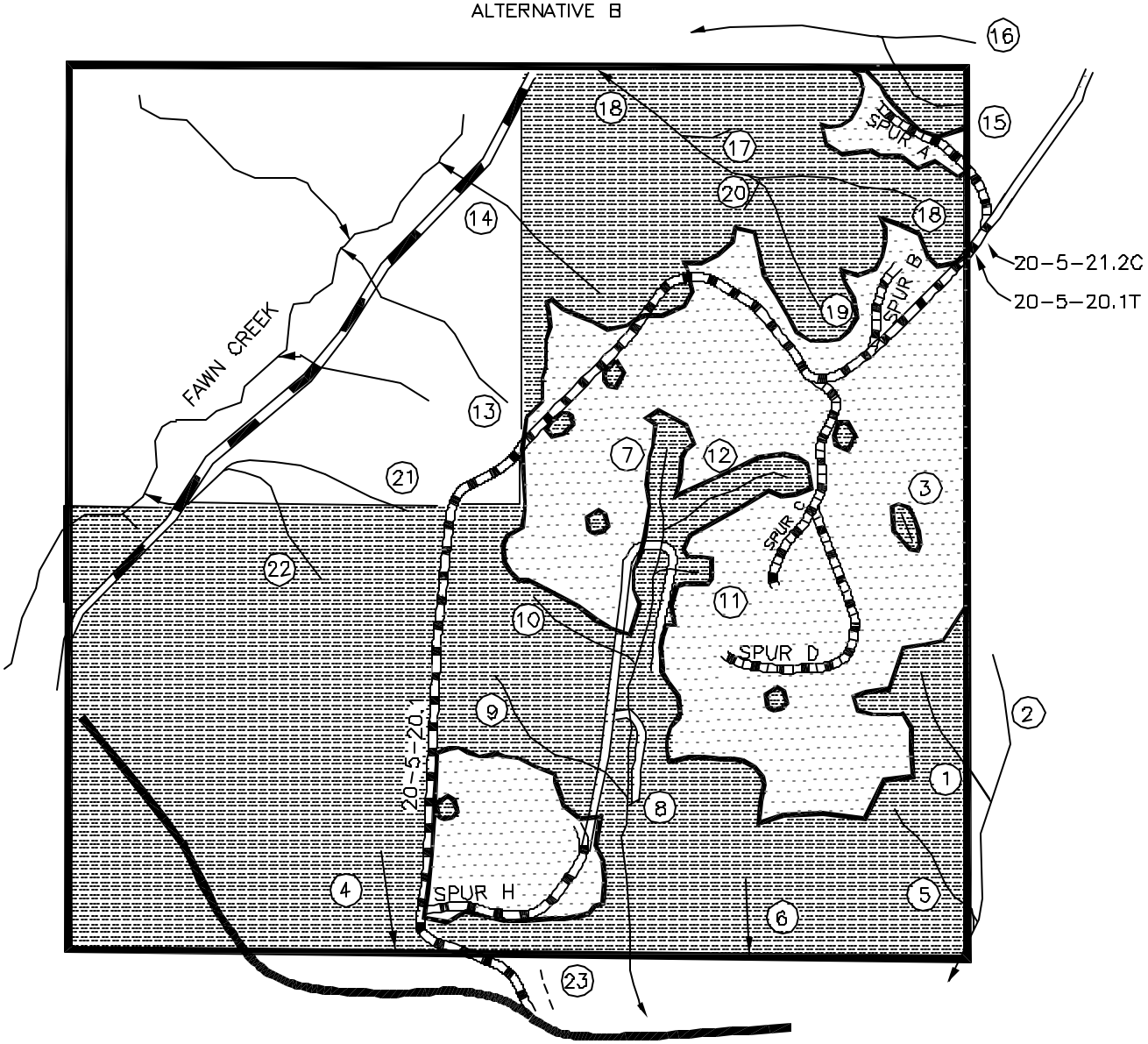
BUREAU OF LAND MANAGEMENT
FAWN CREEK LSR
T20S, R5W, SECTION 17
ALTERNATIVE B

6/27/01



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UNITED STATES
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FAWN CREEK LSR
T20S, R5W, SECTION 17
ALTERNATIVE D

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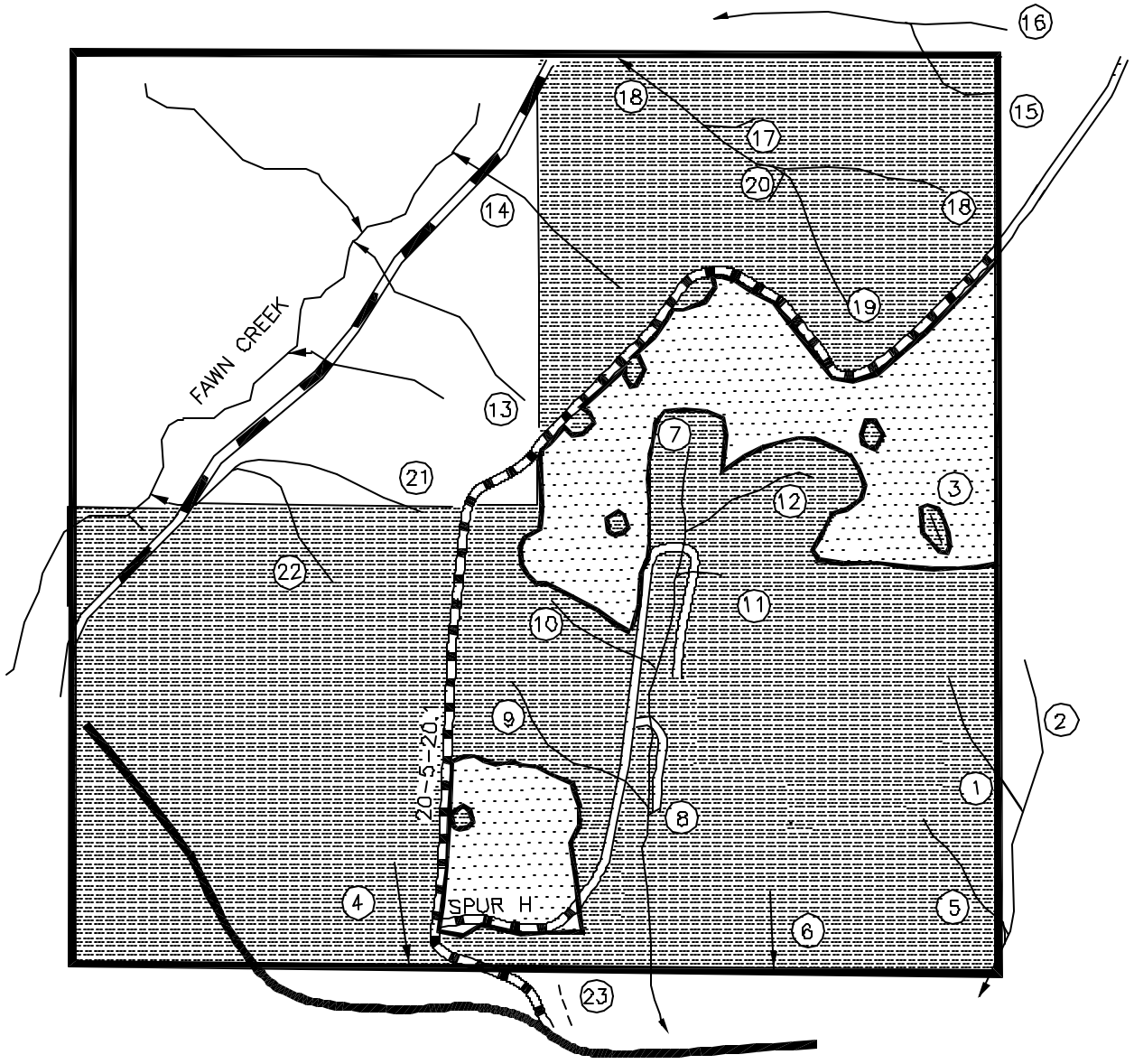

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RESERVE AREA

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DIRT ROAD

ENVIRONMENTAL ASSESSMENT NO. OR090-01-21

Fawn Creek Forest Management Project

Timber Sale Tract No. E-99-382

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Forester

August 2001

United States
Department of the Interior
Bureau of Land Management
Eugene District Office
South Valley Resource Area